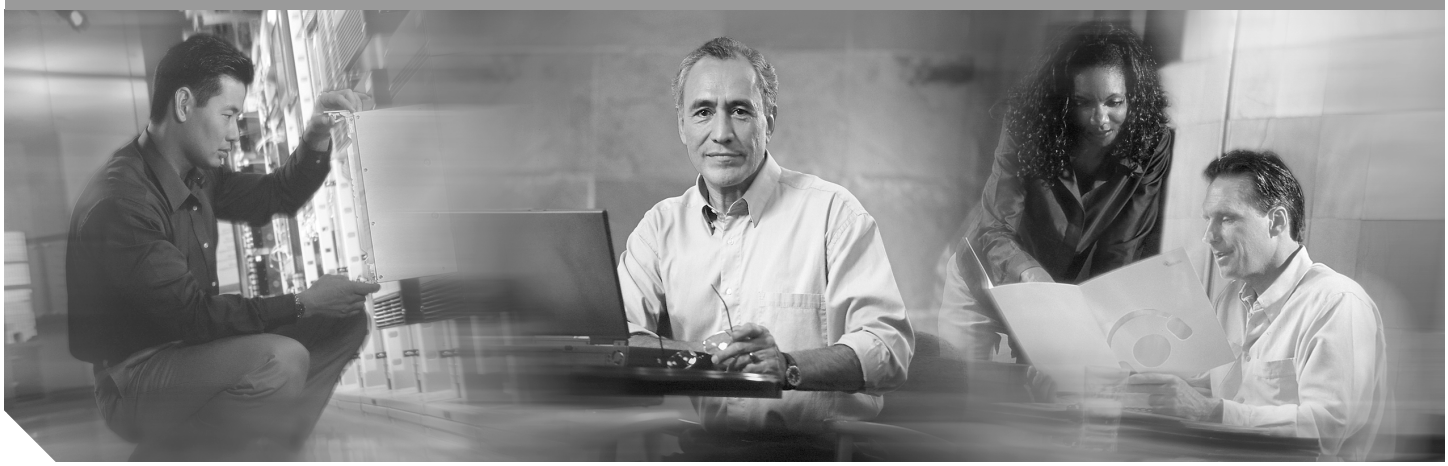
Cisco Systems

Quick Start Guide



Advanced Integration Module Installation in Cisco 2600 Series, Cisco 3600 Series, and Cisco 3700 Series Routers

1 Required Tools and Equipment
2 Opening the Chassis
3 Installing AIMs
4 Applying the AIM Label to the Chassis
5 Closing the Chassis
6 Verifying AIM Installation
7 Where to Go Next
8 Obtaining Documentation
9 Documentation Feedback
10 Obtaining Technical Assistance
11 Obtaining Additional Publications and Information

1 Required Tools and Equipment

To install an advanced integration module (AIM) in a Cisco modular router chassis, you need the following tools and equipment:

- Number 2 Phillips screwdriver or small flat-blade screwdriver
- 1/4-inch nut driver
- 3/16-inch open-end wrench
- Torx-15 screwdriver (for installation in Cisco 3660 only)
- ESD-preventive wrist strap
- Tape for DC circuit breaker handle

Safety Information

For safety information that you need to know before working on your Cisco router, refer to the *Regulatory Compliance and Safety Information* document that accompanied your router and is accessible online on Cisco.com. For information about accessing this document, see the "Where to Go Next" section on page 12 and the "Obtaining Documentation" section on page 13.

Warning **Only trained and qualified personnel should be allowed to install or replace this equipment. To see translations of the warnings that appear in this publication, refer to the *Regulatory Compliance and Safety Information* document that accompanied this device.**

Warning **Two people are required to lift the chassis. Grasp the chassis underneath the lower edge and lift with both hands. To prevent injury, keep your back straight and lift with your legs, not your back. To prevent damage to the chassis and components, never attempt to lift the chassis with the handles on the power supplies or on the interface processors, or by the plastic panels on the front of the chassis. These handles were not designed to support the weight of the chassis. To see translations of the warnings that appear in this publication, refer to the *Regulatory Compliance and Safety Information* document that accompanied this device.**

Caution Electrostatic discharge (ESD) can damage equipment and impair electrical circuitry. Always follow ESD prevention procedures when removing and replacing cards.

2 Opening the Chassis

To install or remove an AIM, you have to open the chassis. There are three different chassis types:

- Chassis of 1 rack unit (RU) height—has separable top and bottom halves (most Cisco 2600 series routers)
- Chassis of 2-RU height with removable cover—has flat cover with separating hinge (some Cisco 2600, Cisco 3600, and Cisco 3700 series routers)
- Chassis with plug-in CPU/mainboard—all have 2 or more RU height (some Cisco 3600 and Cisco 3700 series routers)

Refer to the procedure that applies to your router. For more detailed instructions, refer to the online AIM installation procedure on cisco.com.

The following warning applies to routers that use a DC power supply:

Warning **Before performing any of the following procedures, ensure that power is removed from the DC circuit. To ensure that all power is OFF, locate the circuit breaker on the panel board that services the DC circuit, switch the circuit breaker to the OFF position, and tape the switch handle of the circuit breaker in the OFF position. To see translations of the warnings that appear in this publication, refer to the *Regulatory Compliance and Safety Information* document that accompanied this device.**

The following warning applies to all routers:

Warning **Before opening the chassis, disconnect the telephone-network cables to avoid contact with telephone-network voltages. To see translations of the warnings that appear in this publication, refer to the *Regulatory Compliance and Safety Information* document that accompanied this device.**

Opening a Chassis of 1-RU Height

Perform this procedure with electrical power to the router turned OFF, with network interface cables disconnected, and with the router removed from its mounting rack.

Step 1 Remove the screws from the top of the chassis.

Step 2 Slide the top half of the chassis toward the rear. (See Figure 1.)

Step 3 Separate the top half of the chassis from the bottom half. (See Figure 2.)

Figure 1 Sliding Top Half of Chassis Toward the Rear—Chassis of 1-RU Height

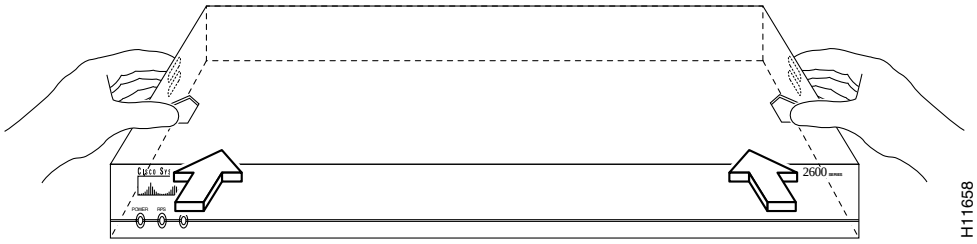
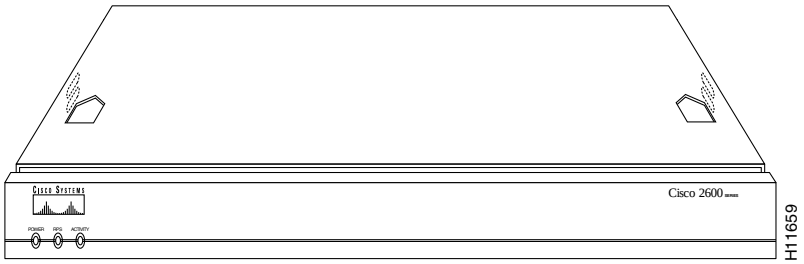


Figure 2 Top Half of Chassis Ready for Removal—Chassis of 1-RU Height



Opening a Chassis of 2-RU Height with Removable Cover

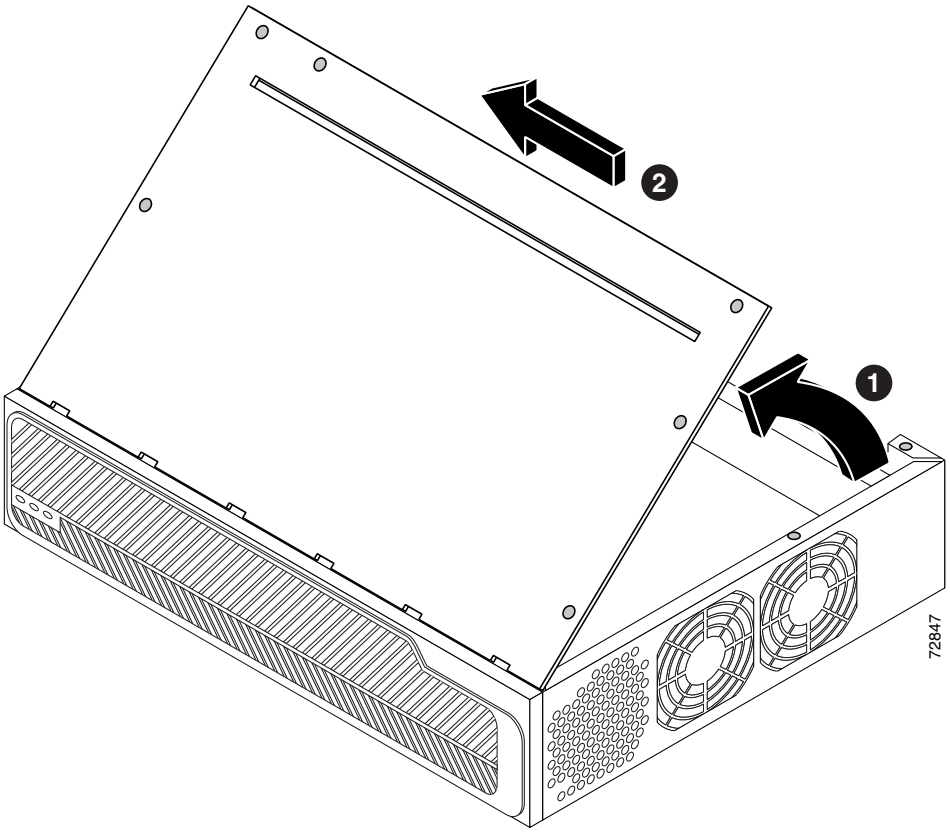
Perform this procedure with electrical power to the router turned OFF, with network interface cables disconnected, and with the router removed from its mounting rack.

Step 1 Remove the screws from the top of the cover (typically five or six screws, depending on the router model). Set the screws aside in a safe place.

Step 2 If your router has a blank cover plate in the upper right network-module slot, and displays the message LOOSEN SCREW TO REMOVE COVER, loosen the captive screw at the left edge of the blank cover.

Step 3 Lift the cover up to a 45-degree angle, and disengage it from the chassis. (See Figure 3.)

Figure 3 Removing the Cover from Chassis of 2-RU Height with Removable Cover



Opening a Chassis with a Plug-In CPU/Mainboard

Perform this procedure with electrical power to the router turned OFF and with network interface cables disconnected.

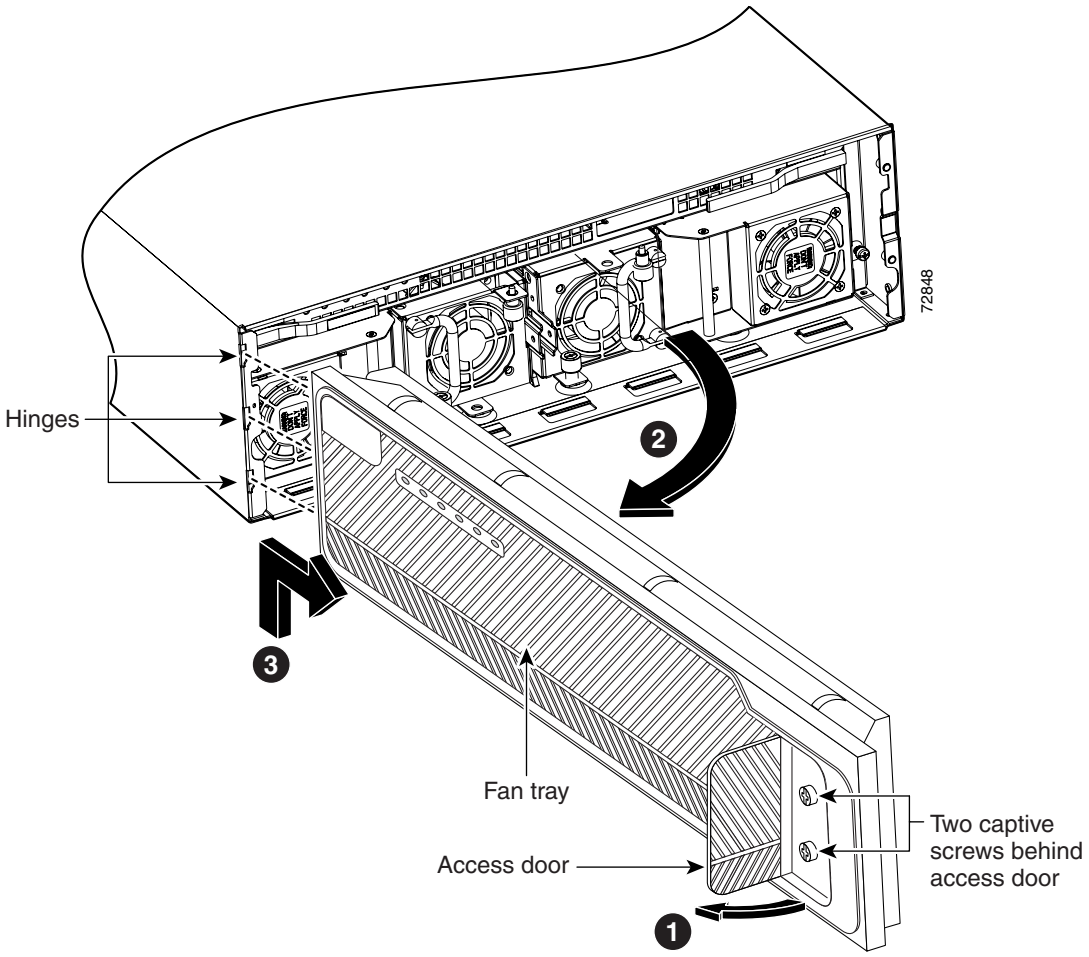
Warning **Before removing the system board tray, disconnect the telephone-network cables to avoid contact with telephone-network voltages. To see translations of the warnings that appear in this publication, refer to the *Regulatory Compliance and Safety Information* document that accompanied this device.**

Warning **Do not touch the power supply when the power cord is connected. For systems with a power switch, line voltages are present within the power supply even when the power switch is OFF and the power cord is connected. For systems without a power switch, line voltages are present within the power supply when the power cord is connected. To see translations of the warnings that appear in this publication, refer to the *Regulatory Compliance and Safety Information* document that accompanied this device.**

Step 1 If your router has a hinged front panel (Cisco 3745, for example), loosen the two captive screws behind the access door at one edge of the panel; then open the front panel to the straight-out position, and lift it off its hinges. See Figure 4.

If your router does not have a hinged front panel (Cisco 3660, for example), the CPU/mainboard is located at the rear of the chassis, near where the network interface cables are connected. Go to Step 2.

Figure 4 Removing Front Panel (If Present) from Chassis with Plug-In CPU/Mainboard (Cisco 3745 Shown)

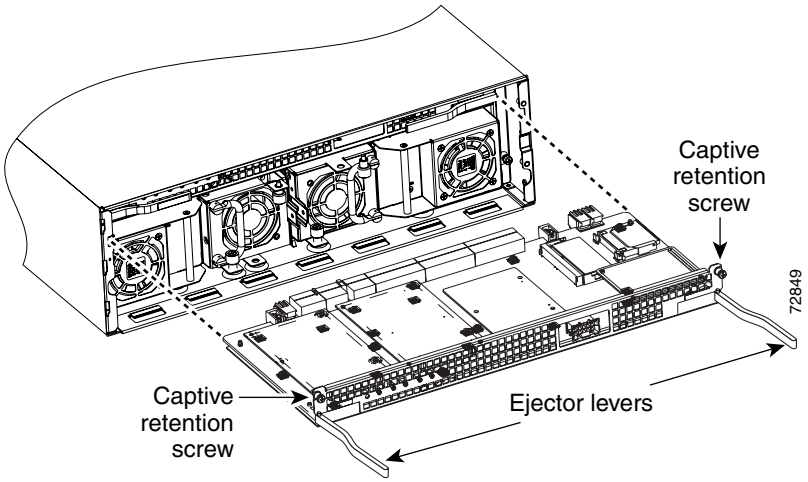


Step 2 Loosen the two captive retention screws on the front of the CPU/mainboard. (See Figure 5.)

Step 3 Rotate the ejector levers to their open position. (See Figure 5.)

Step 4 Pull the tray levers to slide the CPU/mainboard out of the chassis. (See Figure 5).

Figure 5 Removing the CPU/Mainboard (Cisco 3745 Shown)



3 Installing AIMs

Perform the following procedure for each AIM to be installed. To complete this procedure, you need a number 2 Phillips screwdriver or a flat-blade screwdriver (for Cisco 3660 only, a Torx-15 screwdriver), and a 1/4-inch nut driver. For more detailed instructions, refer to the online AIM installation procedure on Cisco.com.

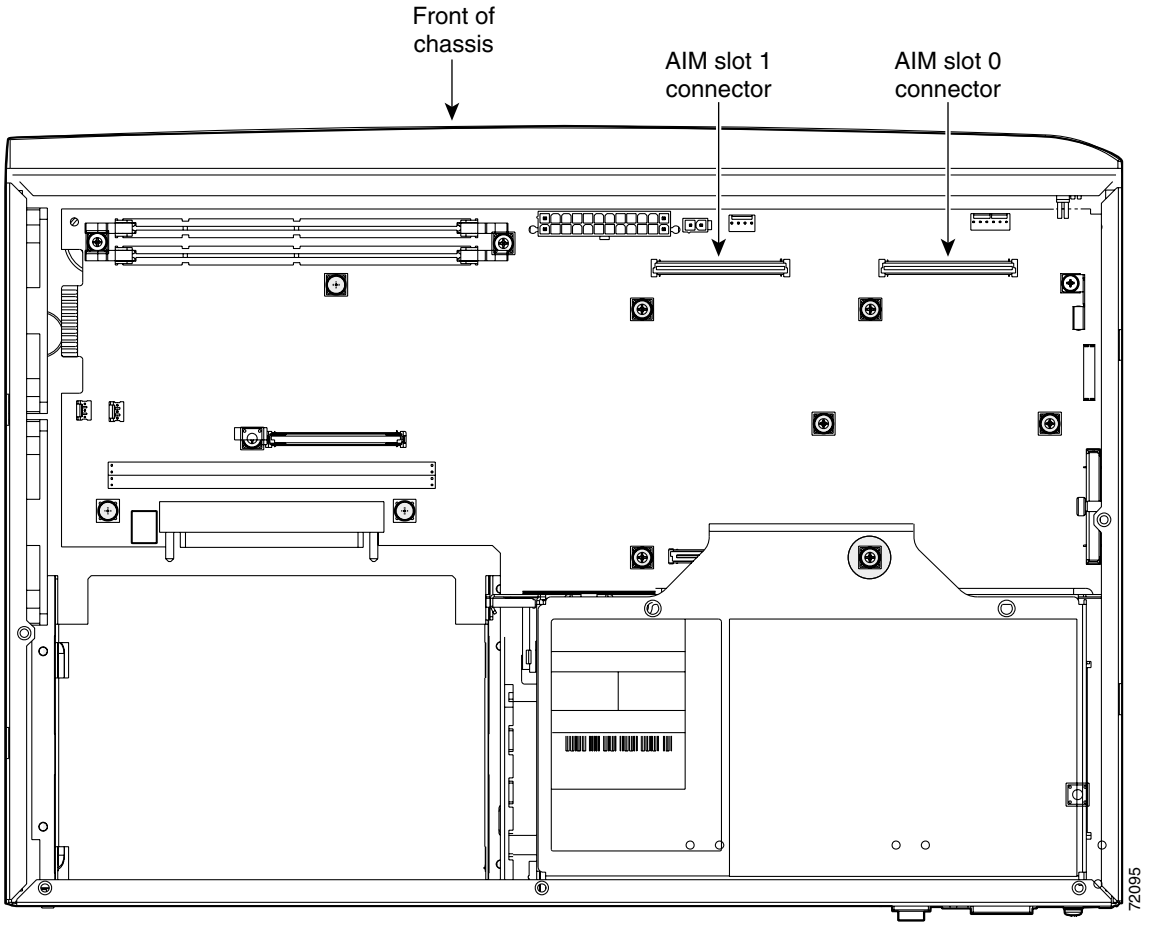
Note Some Cisco routers have one AIM connector (AIM slot 0), and some have two AIM connectors (AIM slot 0 and AIM slot 1). If there are two AIM slots, you can install one or two compression AIMs, but only one encryption AIM (in either slot).

Note Some AIMs are provided with two mounting kits that contain different standoffs. For a router with a 1-RU chassis, use the mounting kit that contains a plastic standoff that snaps in at both ends. For all other routers, use the mounting kit that contains a plastic standoff with one threaded end.

Step 1 Locate the AIM connector to be used on the system board. Figure 6 shows the AIM connector locations on a typical system board in a Cisco router.

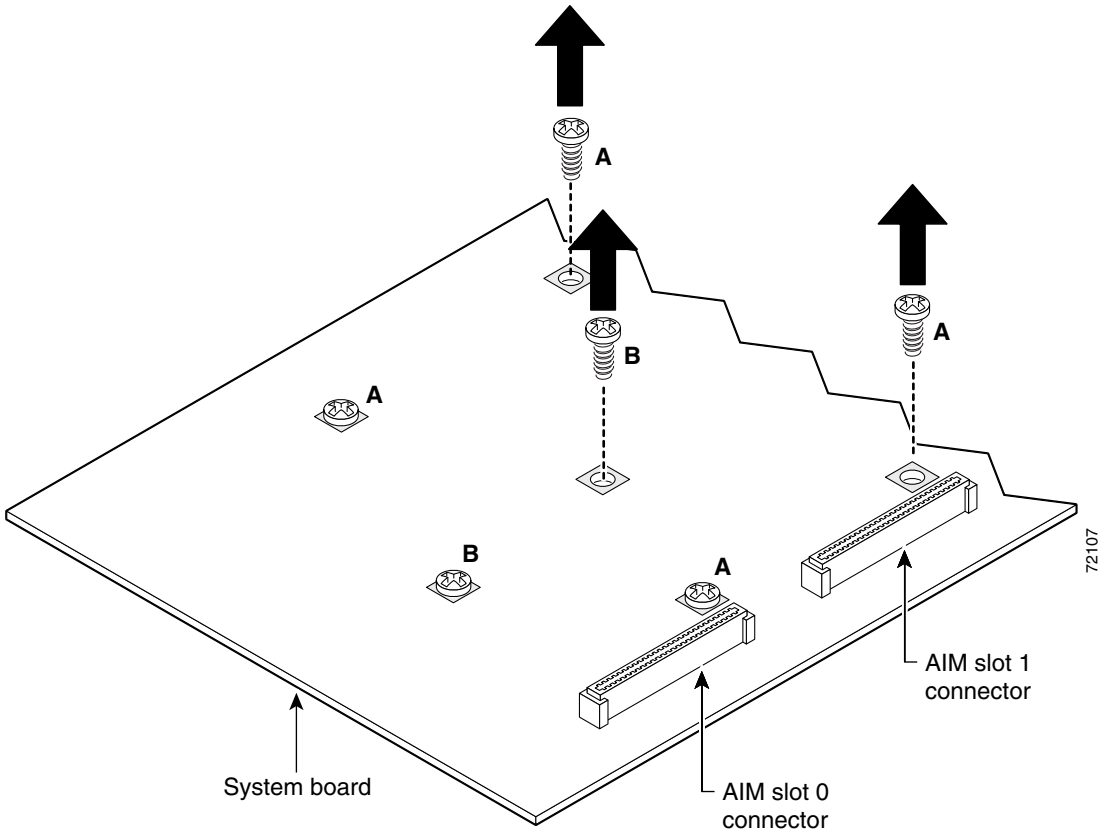
Caution To prevent damage to an AIM-CUE, do not install an AIM-CUE in AIM slot 0 of a Cisco 3745 router. You may install an AIM-CUE in AIM slot 1 of a Cisco 3745 router.

Figure 6 AIM Connector Locations in a Typical Cisco Router



Step 2 Remove screws from the system board near the AIM connector that you are going to use—screws labeled A in Figure 7 are present in all chassis; screws labeled B are present in all chassis except Cisco 2600 series chassis of 1-RU height. The screws in a Cisco 3660 router require use of a Torx-15 screwdriver.

Figure 7 Removing Screws from System Board—AIM Slot 1 Installation Shown



Step 3 Install the two metal standoffs (from the appropriate mounting kit) in place of the two screws labeled A in Figure 7. Make sure that the screw threads on the standoffs match the screws that you removed in Step 2. Hand tighten with a 1/4-inch nut driver. (See Figure 8.).

Caution Make sure that the standoffs are installed straight. Tighten them gently but firmly. The shoulder must be seated tight against the system board.

Step 4 Install the threaded or snap-in plastic standoff (from the appropriate mounting kit) in the system board.

If the plastic standoff is threaded, install it in place of the screw labeled B in Figure 7. Tighten it firmly using your fingers, or very carefully using a 3/16-inch open-end wrench. (See Figure 8.)

If the plastic standoff is the snap-in type, press it firmly into the nonthreaded hole in the system board to be sure it is locked to the board.

Note For a 1-RU chassis, the plastic standoff snaps into the system board. Be sure to insert the locking end of the standoff into the system board. The locking end is the shortest end of the standoff.

For all other chassis types, the plastic standoff is threaded. Make sure that it is installed straight and that the shoulder is seated against the system board.

Step 5 Plug the AIM into the AIM connector on the system board. (See Figure 8.) Make sure that the plastic standoff fits into the hole in the AIM board and that the AIM is fully seated in the connector.

Step 6 Insert the screws (from the mounting kit) through the AIM into the metal standoffs. (See Figure 8.)

Step 7 Check that the AIM is installed correctly on the system board. (See Figure 9.)

Figure 8 Connecting an AIM to the System Board

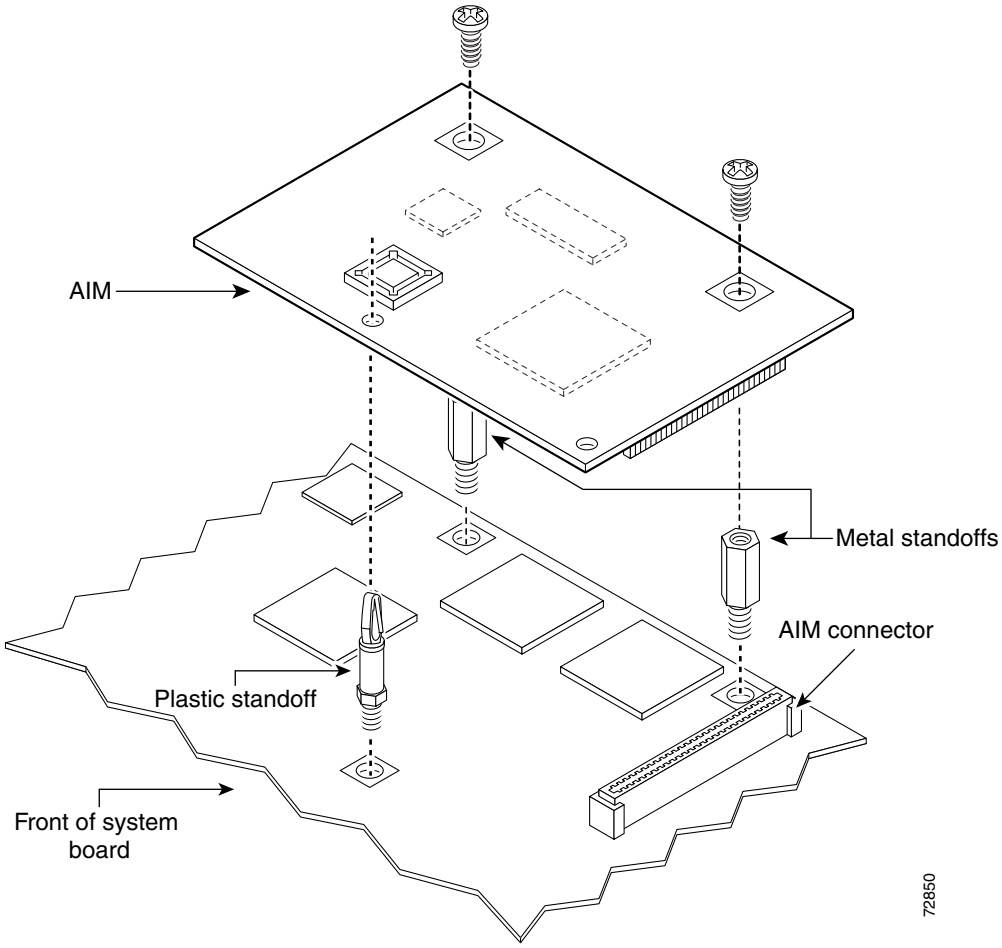
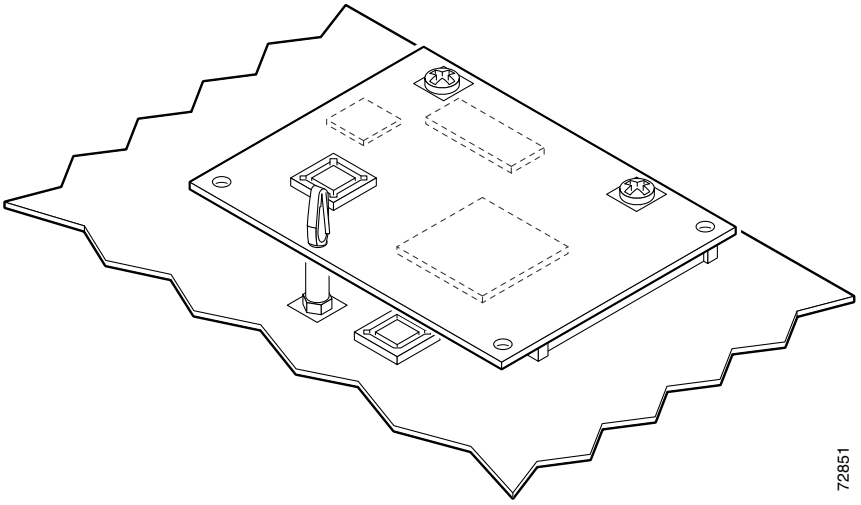


Figure 9 Installed AIM



4 Applying the AIM Label to the Chassis

The AIM label for the chassis might be in the AIM mounting kit, or it might be attached to the label on the AIM card. Apply the chassis label as follows:

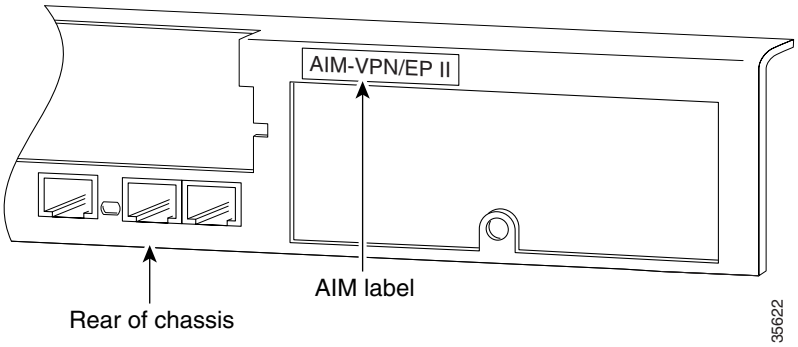
Step 1 If the chassis label is attached to the label on the AIM card, carefully tear off the chassis label at the perforation. If the chassis label is in the AIM mounting kit, remove the label from the kit bag.

Step 2 Peel the chassis label from its backing.

Step 3 If there is a suitable space, apply the chassis label to the rear of the chassis. If no suitable space is available on the rear of the chassis, apply the label to the top cover at the back edge. The label must be visible with the chassis installed. See Figure 10 for a typical label location on the rear of a chassis.

Note Do not apply the AIM label to a blank cover plate, to any removable network module or interface card, or over any holes, screws, or existing labels.

Figure 10 AIM Label Location on Chassis of 1-RU Height



5 Closing the Chassis

See the procedure following that applies to your router. For more detailed instructions, refer to the online AIM installation procedure on Cisco.com. (See the "Where to Go Next" section on page 12 for information about accessing online documents.)

Caution Before closing the router, be sure that all cables are secured and are not in danger of being pinched or cut.

Closing a Chassis of 1-RU Height

Perform this procedure with electrical power to the router turned OFF, with network interface cables disconnected, and with the router removed from its mounting rack.

Step 1 Install the top section of the chassis onto the bottom section. (See Figure 1 on page 3 and Figure 2 on page 3.) At the rear, the top fits *under* the bottom lip. At the front, the top fits *over* the bottom lip.

Step 2 Reinstall the cover screws, and tighten to 8 or 9 in-lb. of torque.

Step 3 Install the router in its rack, and connect power and interface cables.

Step 4 Power ON the router, and refer to the "Verifying AIM Installation" section on page 12.

Closing a Chassis of 2-RU Height with Removable Cover

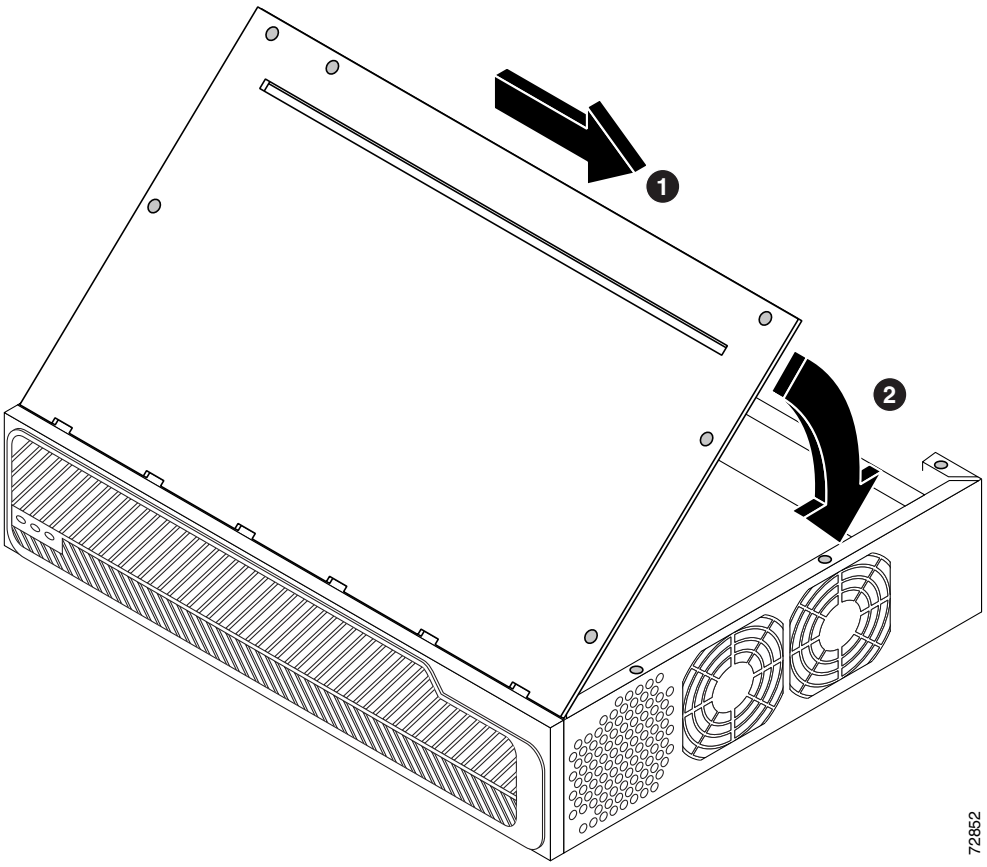
Perform this procedure with electrical power to the router turned OFF, with network interface cables disconnected, and with the router removed from its mounting rack.

Step 1 Hold the cover at a 45-degree angle, engage the hinge, and lower the cover onto the chassis. (See Figure 11.)

Step 2 Reinstall the cover screws (typically five or six, depending on the router model).

Step 3 If your router has a blank cover plate in the upper right network-module slot, and displays the message LOOSEN SCREW TO REMOVE COVER, reinstall the captive screw at the left edge of the blank cover.

Figure 11 Replacing the Cover on a Chassis of 2-RU Height



Step 4 Install the router in a rack or on a desktop, and connect power and interface cables.

Step 5 Power ON the router, and refer to the "Verifying AIM Installation" section on page 12.

Observe the following warning if your Cisco router uses DC power:

Warning **After wiring the DC power supply, remove the tape from the circuit breaker switch handle and reinstate power by moving the handle of the circuit breaker to the ON position. To see translations of the various warnings that appear in this publication, refer to the *Regulatory Compliance and Safety Information* document that accompanied this device.**

Closing a Chassis with a Plug-In CPU/Mainboard

Perform this procedure with electrical power to the router turned OFF and with network interface cables disconnected.

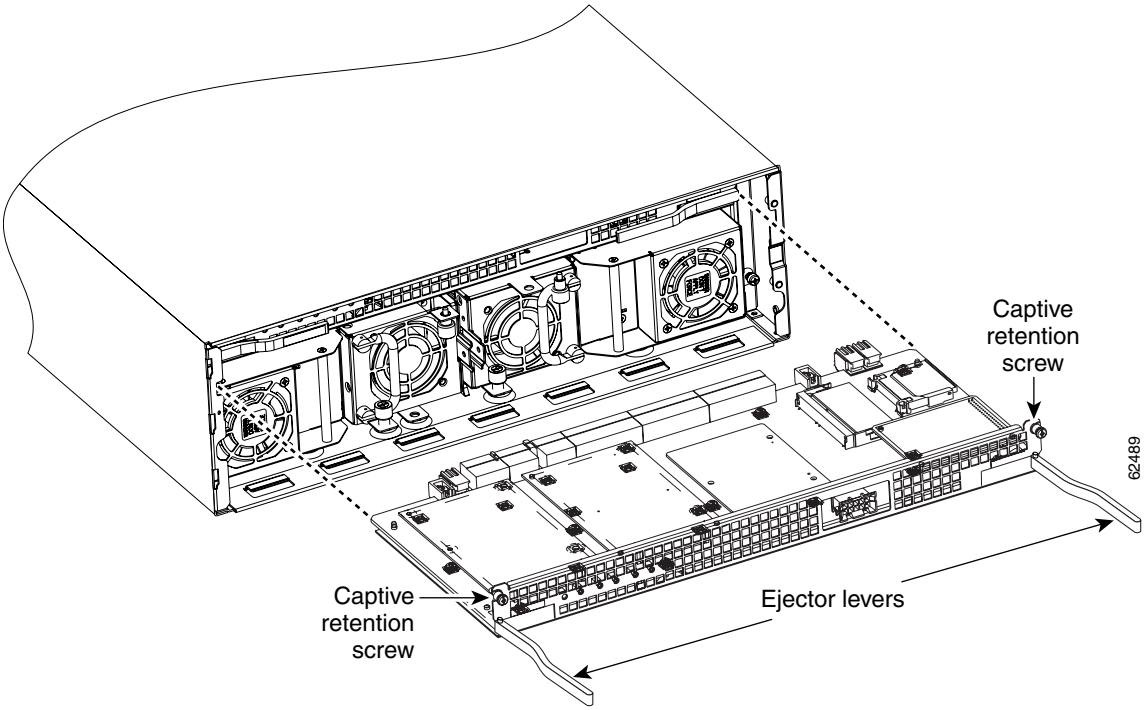
Step 1 Make sure that the ejector levers are fully open. Carefully insert the CPU/mainboard into the chassis slot until the connector is engaged, and then close the ejector levers to fully seat the CPU/mainboard connector. (See Figure 12.)

Step 2 Tighten the two captive retention screws; there is one at each edge of the CPU/mainboard.

Step 3 If your router has a hinged front panel, engage the hinges and close the front panel; then tighten the two captive screws behind the small access door at the right-hand edge. (See Figure 4 on page 5 for reference.)

If your router does not have a hinged front panel, skip to Step 4.

Figure 12 Reinstalling the CPU/Mainboard



Step 4 Reinstall the chassis on a rack or desktop.

Step 5 Connect power and interface cables.

Step 6 Power ON the router, and refer to the "Verifying AIM Installation" section on page 12.

Observe the following warning if your Cisco router uses DC power:

Warning **After wiring the DC power supply, remove the tape from the circuit breaker switch handle and reinstate power by moving the handle of the circuit breaker to the ON position. To see translations of the various warnings that appear in this publication, refer to the *Regulatory Compliance and Safety Information* document that accompanied this device.**

6 Verifying AIM Installation

Make sure that your router is operating with a Cisco IOS release and feature set that supports any AIMs that you have installed. Verify this by using the **show version** command. In the following example, one VPN AIM is recognized by the system (see the bold entry fourth line from last):

```
Router# show version

Cisco Internetwork Operating System Software
IOS (tm) C2600 Software (C2600-JK8O3S-M), Version 12.2(1)T
Copyright (c) 1986-2001 by cisco Systems, Inc.
Compiled Fri 06-Apr-01 21:56
Image text-base: 0x80008088, data-base: 0x81654AD0

ROM: System Bootstrap, Version 12.1(3r)T1, RELEASE SOFTWARE (fc1)
ROM: C2600 Software (C2600-JK8O3S-M), Version 12.2(0.18)T

Router uptime is 2 weeks, 6 days, 19 hours, 35 minutes
System returned to ROM by power-on
System image file is "flash:c2600-jk8o3s-mz.122-0.18.T"

cisco 2651 (MPC860P) processor (revision 0x00) with 60416K/5120K bytes of memor.
Processor board ID JAB043003AV (748576408)
M860P processor: part number 5, mask 1
Bridging software.
X.25 software, Version 3.0.0.
SuperLAT software (copyright 1990 by Meridian Technology Corp).
TN3270 Emulation software.
2 FastEthernet/IEEE 802.3 interface(s)
4 Serial(sync/async) network interface(s)
1 Virtual Private Network (VPN) Module(s)
32K bytes of non-volatile configuration memory.
32768K bytes of processor board System flash (Read/Write)

Configuration register is 0x2102
```

Obtain hardware information about an installed AIM by using the **show diag** command. The following example shows the hardware revision and additional information about encryption AIM 0. You will see additional output that is not shown in this example.

```
Router# show diag

Router Backplane EEPROM:
        PCB Serial Number        :JAD05470J3H
        Processor type           :61
.
.
.
Encryption AIM 0:
        Hardware Revision        :1.0
        Top Assy. Part Number    :800-15369-02
        Board Revision           :C0
        Deviation Number         :0-0
        Fab Version              :02
        PCB Serial Number        :JAB061305B9
.
.
.
```

7 Where to Go Next

All of the documents described here are available online on Cisco.com. To be sure of obtaining the latest information, you should access the documentation online.

To print a document in its original page format, access the online document, and click on the PDF icon.

To access online user documentation (PDF and HTML formats):

From Cisco.com at **http://www.cisco.com**, under **Products & Services**, select **Cisco 2600 Series Multiservice Platforms** and select **Instructions and Guides**.

For configuration information specific to Cisco 2600 series, Cisco 3600 series, and Cisco 3700 series routers:

Software Configuration Guide: Cisco 2600 Series, Cisco 3600 Series, and Cisco 3700 Series Routers

You can access this document at: **Cisco Product Documentation > Access Servers and Access Routers > Modular Access Routers >** *Cisco platform you are using* **> Software configuration documents for** *Cisco platform you are using*

For detailed configuration information for specific features:

Configuration Guides and Command References for the Cisco IOS software release installed on your Cisco router.

You can access these documents at: **Cisco Product Documentation > Cisco IOS Software Configuration >** *Cisco IOS Release you are using* **> Configuration Guides and Command References**

For new features associated with a specific software release:

New feature documentation for the Cisco IOS software release installed on your Cisco router.

You can access these documents at: **Cisco Product Documentation > Cisco IOS Software Configuration >** *Cisco IOS Release you are using* **> New Feature Documentation**

For Cisco Feature Navigator:

If you have an account on Cisco.com, you can get updated information about platform support for features by accessing Cisco Feature Navigator at the following URL: http://www.cisco.com/go/fn.

For more information about AIM installation:

AIM installation documents provide detailed instructions for installing specific AIMs in specific router chassis types.

You can access these documents at: **Cisco Product Documentation > Access Servers and Access Routers > Modular Access Routers >** *Cisco platform you are using* **> Hardware installation documents for** *Cisco platform you are using* **> Advanced integration module (AIM) installation**

For regulatory compliance and safety information:

The regulatory compliance and safety documents provide essential safety information applicable to your router and contain multiple-language translations of the safety warnings applicable to the Cisco routers.

You can access these documents at: **Cisco Product Documentation > Access Servers and Access Routers > Modular Access Routers >** *Cisco platform you are using* **> Regulatory compliance and safety documents for** *Cisco platform you are using*

8 Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. Cisco also provides several ways to obtain technical assistance and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

Cisco.com

You can access the most current Cisco documentation on the World Wide Web at this URL:

http://www.cisco.com/univercd/home/home.htm

You can access the Cisco website at this URL:

http://www.cisco.com

International Cisco websites can be accessed from this URL:

http://www.cisco.com/public/countries_languages.shtml

Ordering Documentation

You can find instructions for ordering documentation at this URL:

http://www.cisco.com/univercd/cc/td/doc/es_inpck/pdi.htm

You can order Cisco documentation in these ways:

- Registered Cisco.com users (Cisco direct customers) can order Cisco product documentation from the Ordering tool:

  http://www.cisco.com/en/US/partner/ordering/index.shtml
- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco Systems Corporate Headquarters (California, USA) at 408 526-7208 or, elsewhere in North America, by calling 800 553-NETS (6387).

9 Documentation Feedback

You can submit e-mail comments about technical documentation to bug-doc@cisco.com.

You can submit comments by using the response card (if present) behind the front cover of your document or by writing to the following address:

Cisco Systems
Attn: Customer Document Ordering
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

10 Obtaining Technical Assistance

For all customers, partners, resellers, and distributors who hold valid Cisco service contracts, the Cisco Technical Assistance Center (TAC) provides 24-hour-a-day, award-winning technical support services, online and over the phone. Cisco.com features the Cisco TAC website as an online starting point for technical assistance. If you do not hold a valid Cisco service contract, please contact your reseller.

Cisco TAC Website

The Cisco TAC website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The Cisco TAC website is available 24 hours a day, 365 days a year. The Cisco TAC website is located at this URL:

http://www.cisco.com/tac

Accessing all the tools on the Cisco TAC website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a login ID or password, register at this URL:

http://tools.cisco.com/RPF/register/register.do

Opening a TAC Case

Using the online TAC Case Open Tool is the fastest way to open P3 and P4 cases. (P3 and P4 cases are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Case Open Tool automatically recommends resources for an immediate solution. If your issue is not resolved using the recommended resources, your case will be assigned to a Cisco TAC engineer. The online TAC Case Open Tool is located at this URL:

http://www.cisco.com/tac/caseopen

For P1 or P2 cases (P1 and P2 cases are those in which your production network is down or severely degraded) or if you do not have Internet access, contact Cisco TAC by telephone. Cisco TAC engineers are assigned immediately to P1 and P2 cases to help keep your business operations running smoothly.

To open a case by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)
EMEA: +32 2 704 55 55
USA: 1 800 553-2447

For a complete listing of Cisco TAC contacts, go to this URL:

http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml

TAC Case Priority Definitions

To ensure that all cases are reported in a standard format, Cisco has established case priority definitions.

Priority 1 (P1)—Your network is "down" or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Priority 2 (P2)—Operation of an existing network is severely degraded, or significant aspects of your business operation are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Priority 3 (P3)—Operational performance of your network is impaired, but most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Priority 4 (P4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

11 Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- Cisco Marketplace provides a variety of Cisco books, reference guides, and logo merchandise. Go to this URL to visit the company store:

  http://www.cisco.com/go/marketplace/

- The Cisco *Product Catalog* describes the networking products offered by Cisco Systems, as well as ordering and customer support services. Access the Cisco Product Catalog at this URL:

  http://cisco.com/univercd/cc/td/doc/pcat/

- *Cisco Press* publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press online at this URL:

  http://www.ciscopress.com

- *Packet* magazine is the Cisco quarterly publication that provides the latest networking trends, technology breakthroughs, and Cisco products and solutions to help industry professionals get the most from their networking investment. Included are networking deployment and troubleshooting tips, configuration examples, customer case studies, tutorials and training, certification information, and links to numerous in-depth online resources. You can access Packet magazine at this URL:

  http://www.cisco.com/packet

- *iQ Magazine* is the Cisco bimonthly publication that delivers the latest information about Internet business strategies for executives. You can access iQ Magazine at this URL:

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